

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-21 (cancelled).

22. (currently amended) An electromotive vehicle comprising a ~~permanent magnet electric rotating machine~~ the electromotive vehicle drive according to claim ~~18~~ 28.

23. (currently amended) An electromotive vehicle comprising a ~~permanent magnet electric rotating machine~~ the electromotive vehicle drive according to claim ~~19~~ 29.

24-25 (cancelled).

26. (previously presented) A permanent magnet electric rotating machine comprising:

a stator; and

a rotor arranged at a side of an inner periphery of said stator with a rotation air gap;

said rotor having plural permanent magnet insertion holes arranged circumferentially in a ring-shaped arrangement, permanent magnets embedded

in said plural permanent magnet insertion holes, and auxiliary magnetic pole portions provided between two adjacent plural permanent magnets, wherein

a magnetic air gap is provided in both sides of a peripheral direction of said plural permanent magnets,

thereby a change in a magnetic flux density between said plural permanent magnets and said auxiliary magnetic pole portions is formed smoothly and a cogging torque is restrained,

wherein each of said plural permanent magnets extends substantially the entire axial length of said rotor.

27. (previously presented) A permanent magnet electric rotating machine comprising:

a stator; and

a rotor arranged at a side of an inner periphery of said stator with a rotation air gap;

said rotor having plural permanent magnet insertion holes arranged circumferentially in a ring-shaped arrangement, permanent magnets embedded in said plural permanent magnet insertion holes, auxiliary magnetic pole portions provided between two adjacent plural permanent magnets, and magnetic pole piece portions arranged between said plural permanent magnets and said stator, wherein

a magnetic air gap is provided between said auxiliary magnetic pole portions and said magnetic pole piece portions;

wherein each of said plural permanent magnets extends substantially the entire axial length of said rotor,

thereby a change in a magnetic flux density between said plural permanent magnets and said auxiliary magnetic pole portion is formed smoothly and a cogging torque is restrained.

28. (new) An electromotive vehicle drive using a permanent magnet electric rotating machine, comprising:

a stator; and

a rotor associated with said stator, an air gap being formed between said stator and said rotor;

said rotor having a rotor iron core and plural permanent magnets embedded in plural permanent magnet insertion holes in said rotor iron core;

said rotor iron core forming auxiliary magnetic pole portions for generating a reluctance torque, and magnetic air gaps for restraining a cogging torque;

said permanent magnet insertion holes being arranged around the rotor in a ring shape in an inner portion of said rotor iron core;

each of said permanent magnets having one of a rectangular solid shape, an arc shape and a trapezoid shape, so as to be inserted in an associated one of said permanent magnet insertion holes to form a reverse polarity characteristic alternatively, and arranged in said inner portion of said rotor iron core;

each of said auxiliary magnetic pole portions being formed between adjacent permanent magnets in a peripheral direction about said rotor; and

each of said magnetic air gaps being arranged in said inner portion of said rotor iron core and being formed between a peripheral direction end portion of a permanent magnet and an auxiliary magnetic pole portion;

thereby a change in a magnetic flux density distribution of said permanent magnets between said permanent magnets and said auxiliary magnetic pole portions is formed smoothly.

29. (new) An electromotive vehicle drive using a permanent magnet electric rotating machine, comprising:

a stator; and

a rotor associated with said stator, an air gap being formed between said stator and said rotor;

said rotor having a rotor iron core and plural permanent magnets embedded in plural permanent magnet insertion holes in said rotor iron core;

said rotor iron core forming auxiliary magnetic pole portions for generating a reluctance torque, and magnetic air gaps for restraining a cogging torque;

said permanent magnet insertion holes being arranged around the rotor in a ring shape in an inner portion of said rotor iron core;

each of said permanent magnets having one of a rectangular solid shape, an arc shape and a trapezoid shape, so as to be inserted in an associated one of said permanent magnet insertion holes to form a reverse polarity characteristic alternatively, and arranged in said inner portion of said rotor iron core;

each of said auxiliary magnetic pole portions being formed between adjacent permanent magnets in a peripheral direction about said rotor; and

each of said magnetic air gaps being arranged in said inner portion of said rotor iron core and being formed between a peripheral direction end portion of a permanent magnet and an auxiliary magnetic pole portion;

non-magnetic members provided in said magnetic air gaps;

thereby a change in a magnetic flux density distribution of said permanent magnets between said permanent magnets and said auxiliary magnetic pole portions is formed smoothly.